

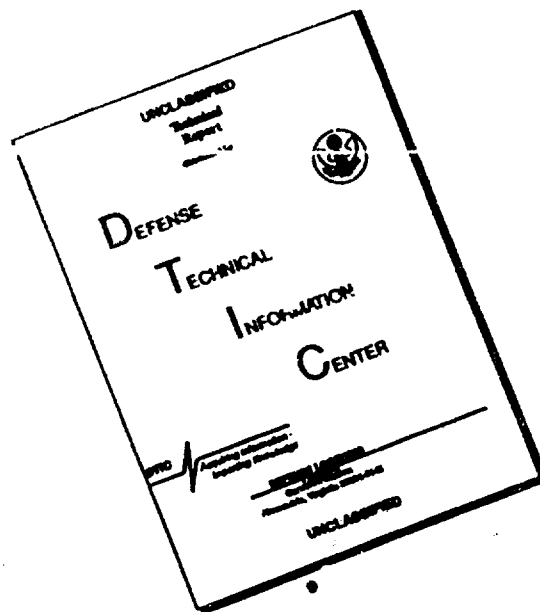


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## REPORT DOCUMENTATION PAGE

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20. DISTRIBUTION/AVAILABILITY OF ABSTRACT <input checked="" type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT <input type="checkbox"/> DTIC USERS			21. ABSTRACT SECURITY CLASSIFICATION Unclassified/unlimited		
22a. NAME OF RESPONSIBLE INDIVIDUAL Herman Chernoff			22b. TELEPHONE (Include Area Code) 617-495-3462		22c. OFFICE SYMBOL

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### Papers Published in Refereed Journals

"Numerical Solutions for Bayes Sequential Decision Problems", (1986). (with A.J. Petkau). SIAM Journal on Scientific and Statistical Computing, Vol. 7, No. 1, pp. 46-59.

"Discussion of 'On the Allocation of Treatments in Sequential Medical Trials' by J.A. Bather and 'The Search for Optimality in Clinical Trials' by P. Armitage", (1985). Int. Statist. Review, 531, pp. 26-28.

"Discussion of the Perone-Ham Paper, Measurement and Control of Information Content in Electrochemical Experiments", (1986). NBS Journal of Research, pp. 539-541.

"Discussion of 'Why Isn't Everyone a Bayesian by B. Efron'", (1986). The American Statistician, Vol. 40, No. 1, pp. 5-6.

"The Effect of Truncation on a Sequential Test for the Drift of a Brownian Motion" (with J.A. Bather and A.J. Petkau), Sequential Analysis 8(2), pp. 169-190, (1989).

"Locally Optimal Design for Comparing Two Probabilities from Binomial Data Subject to Misclassification" (with Y. Haitosky), Biometrika, 77, 4, pp. 787-805 (1990).

### Sections of Books and Reports of Committees (Published)

"A Markov Decision Approach to Nuclear Materials Safeguards", (1987). (with Y.C. Yao). Contributions to the Theory and Application of Statistics, A Volume in Honor of Herbert Solomon. Academic Press, pp. 19-42.

"Remarks on the Estimation of the Coefficients of a Regression in the Presence of Unknown Explanatory Variables", (1986). Adaptive Statistical Procedures and Related Topics (ed. J. Van Ryzin), Vol. 8, IMS Lecture Notes - Monograph Series, Ins. Math Stat., Hayward, California, pp. 338-349.

Spatial Statistics and Digital Image Analysis, National Academy Press 1991.

Policy Implications of Greenhouse Warming, National Academy Press 1991.

Selected Opportunities for Mathematical Sciences Research Related to the Navy Mission, National Academy Press, 1987.

Selected Opportunities for Mathematical Sciences Research Related to the Navy Mission - An Update, National Academy Press, 1990.

### Papers Accepted for Publication in Refereed Journals

1. Chernoff, H. Comments on "Inferences using DNA profiling in forensic identification and paternity cases", by Donald A. Berry, Statistical Science.
2. Chernoff, H. Simple computer intensive methods for estimating parameters of complex models, Computational Statistics and Data Analysis.
3. Chernoff, H. Asymptotic expansions for a truncated version of Lerche's variation of a sequential problem, American Journal of Management Sciences.

### Invited Presentations

1989 Conference at Neuchâtel, Switzerland (in honor of C. R. Rao)

1991 Simple Computer Intensive Methods for Estimating Parameters

1991 Statistics '91 Canada: Asymptotic distribution of likelihood ratio test that a mixture of two binomials is a single binomial

### Honors/Awards

1. Wilks Memorial Award of the American Statistical Association, 1988
2. Statistician of the Year by the Boston Chapter of the American Statistical Association, 1991

### National Activities

#### Member of NRC Committees

BMS (Board on Mathematical Sciences) 1986-1989

PAMRAN (Panel on Applied Mathematics Research Alternatives for the Navy) 1986-1991

Panel on Spatial Statistics 1989-1991

Effects Subpanel of Panel on Policy Implication of Greenhouse Warning 1990-1991

#### Other Committees:

Visiting Committee for Statistics Department, University of Michigan

Visiting Committee for Educational Testing Service, Psychometric Research Section

#### Editorial Posts :

Sequential Analysis, Associate Editor

Journal of Statistical Planning and Inference -

Member of Governing Board and Coordinating Editor

## Summary

One of the first reports, directed at the study of movement of ice, attempted to measure a rigid body motion based on noisy observations at two distinct times of observable points on the rigid body. The noise makes the measured locations subjects to the error and may lead to missing some of the points which are not distinguishable from one another.

Computer intensive methods appeared in three reports. One involves resampling methods for time series. A second involves the use of simple programs which are computer intensive to provide useful, if not optimal estimates of parameters of complex models by relatively simple means. A third involves the numerical solution of Bayes sequential decision problems applied to the bioequivalence problems.

Some work was done and will soon be completed on an astronomical problem involving apparent superluminal motion.

Recently a good deal of effort has been devoted to some problems from molecular biology.

May 17, 1991

List of ONR Technical Reports

Herman Chernoff

Technical Report No.	Title	Date	Author
ONR-C-1	The Estimation of a Rigid Body Motion in The Presence of Noise	September, 1987	C. H. Park
ONR-C-2	Resampling Methods for Time Series	August, 1988	E. Ramos
ONR-C-3	From Species Problems to a General Coverage Problem Via a New Interpretation	March, 1989	S. H. Lo
ONR-C-4	Simple Computer Intensive Methods for Estimating Parameters of Complex Models	June, 1989	H. Chernoff
ONR-C-5	Are All Linear Paired Comparison Models Equivalent?	September, 1990	H. Stern
ONR-C-6	Numerical Solutions for Bayes Sequential Decision Approach to Bioequivalence Problem	March, 1991	J-S. Hwang

# REPORT OF INVENTIONS AND SUBCONTRACTS

(Pursuant to "Patent Rights" Contract Clause) (See Instructions on Reverse Side.)

Public reporting burden for this collection of information is estimated to average 5 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0297), Washington, DC 20503.

1a. NAME OF CONTRACTOR/SUBCONTRACTOR Harvard University		c. CONTRACT NUMBER 33-662-7331-2-30		2a. NAME OF GOVERNMENT PRIME CONTRACTOR Office of Naval Research		c. CONTRACT NUMBER N00014-86-K-0246		3. TYPE OF REPORT (X one) a. INTERIM <input checked="" type="checkbox"/> b. FINAL	
b. ADDRESS (Include ZIP Code) 1350 Massachusetts Avenue Cambridge, MA 02138		d. AWARD DATE (YYMMDD) 4/1/86 - 3/31/91		b. ADDRESS (Include ZIP Code) Office of the Chief of Naval Research, Arlington, VA 22217-		d. AWARD DATE (YYMMDD) 4/1/86-3/31/91		4. REPORTING PERIOD (YYMMDD) a. FROM 4/1/86 b. TO 3/31/91	

## SECTION I - SUBJECT INVENTIONS

5. "SUBJECT INVENTIONS" REQUIRED TO BE REPORTED BY CONTRACTOR/SUBCONTRACTOR (If "None," so state)

a. NAME(S) OF INVENTIONS (Last, first, MI)	b. TITLE OF INVENTION(S)	c. DISCLOSURE NO., PATENT APPLICATION SERIAL NO. OR PATENT NO.	d. ELECTION TO FILE PATENT APPLICATIONS				e. CONFIRMATORY INSTRUMENT OR ASSIGNMENT FORWARDED TO CONTRACTING OFFICER
			(1) United States	(2) Foreign	(a) Yes	(b) No	
N/A	None						

9. ELECTED FOREIGN COUNTRIES IN WHICH A PATENT APPLICATION WILL BE FILED

1. EMPLOYER OF INVENTION(S) NOT EMPLOYED BY CONTRACTOR/SUBCONTRACTOR		(2) Foreign Countries of Patent Application	
(1)(a) Name of Inventor (Last, first, MI) N/A	(2)(a) Name of Inventor (Last, first, MI) N/A	(1) Title of Invention None	(2) Foreign Countries of Patent Application
(b) Name of Employer	(b) Name of Employer		
(c) Address of Employer (Include ZIP Code)	(c) Address of Employer (Include ZIP Code)		

## SECTION II - SUBCONTRACTS (Containing a "Patent Rights" clause)

6. SUBCONTRACTS AWARDED BY CONTRACTOR/SUBCONTRACTOR (If "None," so state)		7. SUBCONTRACT DATES (YYMMDD)	
a. NAME OF SUBCONTRACTOR(S)	b. ADDRESS (Include ZIP Code)	c. DESCRIPTION OF WORK TO BE PERFORMED UNDER SUBCONTRACT(S)	(1) Award
N/A			(2) Estimated Completion

## SECTION III - CERTIFICATION

2. CERTIFICATION OF REPORT BY CONTRACTOR/SUBCONTRACTOR		Non-Profit organization (X appropriate box)	
a. NAME OF AUTHORIZED CONTRACTOR/SUBCONTRACTOR OFFICIAL (Last, first, MI) Chernoff, Herman		c. I certify that the reporting party has procedures for prompt identification and timely disclosure of "Subject Inventions," that such procedures have been followed and that all "Subject Inventions" have been reported.	
b. TITLE Professor of Statistics	d. SIGNATURE <i>Herman Chernoff</i>	e. DATE SIGNED 8/8/91	